


## CASE STUDY – Patient Handling

### TASK TITLE: Patient Handling

<b>Task Description:</b>	<p>The Patient Handling task can occur during medical procedures, patient care on the ward or in outpatient clinics. Patient handling can include transferring the patient from one surface to another, turning and repositioning a patient in a chair or bed, and holding a patient while grooming them. A person performing patient handling can work unassisted or assisted by another person or can use a mechanical lifting device.</p> <p>Patient handling can occur in the following locations:</p> <ul style="list-style-type: none"><li>• Hospital</li><li>• Medical Clinic</li><li>• Dental Clinic</li></ul>
<b>Job Performance Measures Most Often Impacted by Patient Handling:</b>	<p>Measures of work performance can include (but are not necessarily limited to):</p> <ul style="list-style-type: none"><li>• Quality of the patient transfer</li><li>• Patient safety and comfort</li><li>• Efficiency of patient transfer (time required to complete transfer)</li></ul>
<b>Typical Employee Comments about Patient Handling:</b>	<p>Employees typically experience discomfort in the back/torso and legs/feet.</p> <p>The back/torso and legs/feet are the body areas that most commonly receive a “High” priority rating. The remaining body areas, with the exception of the head/eyes, are more likely to receive a “Medium” priority rating, or lower.</p>
<b>Suggested Level II Analysis:</b>	Biomechanical Lifting Analysis, Push/Pull Force Analysis

**Note:** For patient handling tasks, proper ergonomic work techniques include both the body motions used by the employee and the instructions provided to the patient. Many patients can be educated to assist the employee in performing the transfer. This education generally focuses on methods that have patients use their legs to assist with the movement. It is important for the employee to communicate clearly with the patient so that the efforts are coordinated.

## Shoulder/Neck

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
1. Reaching	<ul style="list-style-type: none"> <li>Bed-Stretcher transfer: draw sheet not wide enough</li> </ul> 	149. Provide appropriate tools <ul style="list-style-type: none"> <li>provide a draw sheet wide enough to overlap stretcher and eliminate the need to reach and bend</li> </ul>	✓		low	med	med
	<ul style="list-style-type: none"> <li>Patient is too far away</li> </ul>	38. Move closer to the work location <ul style="list-style-type: none"> <li>stand closer to the patient when repositioning or transferring the patient</li> <li>use a draw sheet to turn the patient</li> </ul>	✓		low	med	med
		132. Remove obstructions <ul style="list-style-type: none"> <li>move wheel chairs, commodes, and stretchers close the bed prior to transferring the patient</li> </ul>	✓		low	med	med
		42. Obtain patient's assistance <ul style="list-style-type: none"> <li>ask the patient to move closer to the edge before handling the patient</li> </ul>	✓		low	med	med


### Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Obstruction restricts smooth movement across</li> </ul>	132. Remove obstructions <ul style="list-style-type: none"> <li>ensure person removes foot supports or moves foot supports out of the way when transferring and repositioning the patient in the wheelchair</li> <li>ensure person removes armrest that is closest to the bed to provide a clear path to transfer the patient</li> </ul> 148. Provide appropriate equipment <ul style="list-style-type: none"> <li>provide wheelchairs and commodes that have removable armrests and footrests</li> </ul>	✓          ✓	✓          ✓	low          med	med          med	med          med

### Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
2. Arm forces: Repeated arm forces or holding/carrying materials	• Patient is too heavy	61. Provide a mechanical lift device		✓	high	med	med
		142. Use two or more persons to perform the transfer	✓		low	med	med
		4. Change lifting/carrying task into a rolling or sliding task		✓	low to med	med	med
		• provide a sliding board					
	• Bed-Stretcher transfer: high friction surface	11. Eliminate unnecessary tasks	✓		low	low	low
		• try to reduce unnecessary transfers by using platform scales and examining the work procedure					
		4. Change a lifting/carrying task into a rolling or sliding task		✓	low to med	med	med
		• provide a sliding board	✓		low	med	med
	• Patient rigid or unable to assist.	142. Use two or more persons to perform the transfer		✓	high	med	med
		61. Provide a mechanical lift device	✓		low	med	med
		142. Use two or more persons to perform the transfer		✓	high	med	med

### Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Manual bed adjustments (crank)</li> </ul> 	61. Provide a mechanical lift device <ul style="list-style-type: none"> <li>provide power adjustments for bed</li> </ul>		✓	high	high	high
	<ul style="list-style-type: none"> <li>Rolling/sliding resistance of cart or piece of equipment causes high forces</li> </ul>	19. Improve wheel condition <ul style="list-style-type: none"> <li>repair wheels on carts or equipment</li> </ul>	✓		low	med	med
		119. Provide wheels <ul style="list-style-type: none"> <li>install appropriate wheels</li> </ul>	✓		med	med	med
	<ul style="list-style-type: none"> <li>Stretcher is too heavy to be pushed manually</li> </ul>	148. Provide appropriate equipment <ul style="list-style-type: none"> <li>provide a stretcher or mechanical-lifting device that is lighter in weight and easier to push</li> </ul>		✓	high	med	med
	<ul style="list-style-type: none"> <li>Floor/surface condition causes high forces during a rolling or sliding task</li> </ul>	17. Improve floor condition <ul style="list-style-type: none"> <li>improve housekeeping</li> <li>repair cracks or gaps in floor</li> <li>provide ramps to compensate for minor differences in floor height</li> </ul>	✓ ✓	✓	low high med	med med med	med med med

### Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"><li>Carry distance is more than three steps</li></ul>	126.Reduce carry distance					
		<ul style="list-style-type: none"><li>position frequently used equipment next to patient</li></ul>	✓		low	med	med
		48. Provide a cart					
		<ul style="list-style-type: none"><li>place infants in bassinets to transport around area or between rooms</li></ul>	✓		low	med	med
		<ul style="list-style-type: none"><li>provide a cart to transport equipment and materials</li></ul>		✓	high	med	med
		<ul style="list-style-type: none"><li>use IV poles to carry patient equipment while moving and transporting patient</li></ul>	✓		low	med	med
		<ul style="list-style-type: none"><li>attach IV poles to stretchers/ carts/wheel chairs when possible</li></ul>	✓		low to med	high	high
		37. Modify facilities to decrease handling					
		<ul style="list-style-type: none"><li>widen doors to allow stretchers and wheelchairs to be moved into bathrooms and patient rooms</li></ul>		✓	high	high	high

### Shoulder/Neck (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
3. High speed, sudden shoulder movements	<ul style="list-style-type: none"> <li>Speed of lift</li> <li>Item is stuck in location or difficult to move</li> </ul>	13. Encourage ergonomic work techniques	✓		low	low	low
		<ul style="list-style-type: none"> <li>encourage person to use smooth fluid movements while handling patient or equipment</li> </ul>					
		42. Obtain patient's assistance	✓		low	med	med
		61. Provide a mechanical lift device					
		<ul style="list-style-type: none"> <li>use a lift device for handling dependent patients</li> </ul>		✓	med	med	med
		128. Reduce force required to install or remove the component					
		<ul style="list-style-type: none"> <li>use lubricant to maintain cranks on beds</li> <li>ensure wheelchair components such as footrests and armrests and bed components are maintained.</li> <li>modify the design of wheelchair components such as armrests and footrests to reduce forces during installation or removal</li> </ul>	✓ ✓	✓	low med high	med med high	med med high
		148. Provide appropriate equipment					
		<ul style="list-style-type: none"> <li>provide electric beds where feasible</li> </ul>		✓	high	high	high

### **Shoulder/Neck (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
4. Head/neck bent or twisted	<ul style="list-style-type: none"> <li>Patient too low</li> </ul>	123.Raise the person <ul style="list-style-type: none"> <li>raise the bed or stretcher to elbow height</li> <li>raise the head of the bed so the patient is upright or elevated</li> </ul>	✓		low	low	low
			✓		low	low	low



## Hands/Wrists/Arms

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
5. Bent wrists/repeated wrist movements or repeated forearm rotation	<ul style="list-style-type: none"> <li>Patient is difficult to grasp due to               <ul style="list-style-type: none"> <li>- patient pain</li> <li>- medical condition</li> </ul> </li> </ul>	94. Provide appropriate handles <ul style="list-style-type: none"> <li>provide a transfer belt - position belt around the patient when repositioning patient in chair, transferring or walking with patient. Handles should be rounded and 1-1½" (2.5-3.8cm) in diameter</li> <li>use draw sheet to reposition patient while in bed or on the stretcher</li> </ul>	✓		low	low	low
			✓		low	low	low
6. Repeated manipulations with fingers	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					
7. Hyper-extension of finger/thumb or repeated single finger activation	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

## Hands/Wrists/Arms (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
8. Hand/grip forces	<ul style="list-style-type: none"> <li>Patient is difficult to grasp due to <ul style="list-style-type: none"> <li>- patient pain</li> <li>- medical condition</li> </ul> </li> </ul>	94. Provide appropriate handles <ul style="list-style-type: none"> <li>provide a transfer belt and position belt around the patient when repositioning patient in chair, transferring or walking with patient. Handles should be rounded and 1-1½" (2.5-3.8cm) in diameter</li> </ul>	✓		low	low	low
		<ul style="list-style-type: none"> <li>use draw sheet to reposition the patient while in bed or on the stretcher. Roll up edge of draw sheet to form handle</li> </ul>	✓		low	low	low
		13. Encourage work ergonomic work techniques <ul style="list-style-type: none"> <li>ensure patient is dry prior to moving or transferring the patient <ul style="list-style-type: none"> <li>- dry patient in bath or commode chair</li> </ul> </li> </ul>	✓		low	low	low
		61. Provide a mechanical lift device <ul style="list-style-type: none"> <li>use a mechanical lifting aid to remove patient from bath</li> </ul>		✓	high	med	med
		4. Change lifting/carrying task into a rolling or sliding task <ul style="list-style-type: none"> <li>provide a sliding board</li> </ul>		✓	low to med	med	med

### Hands/Wrists/Arms (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
9. High speed hand/wrist/arm movements or vibration, impact or torque to the hand	<ul style="list-style-type: none"> <li>Speed of lift</li> <li>Item is stuck in location or difficult to move</li> </ul>	13. Encourage ergonomic work techniques	✓		low	low	low
		<ul style="list-style-type: none"> <li>encourage person to use smooth fluid movements while handling patient or equipment</li> </ul>					
		61. Provide a mechanical lift device		✓	med to high	med	med
		<ul style="list-style-type: none"> <li>use a lift device for handling dependent patients</li> </ul>					
		128.Reduce force required to install or remove the component	✓		low	med	med
		<ul style="list-style-type: none"> <li>use lubricant to maintain cranks on beds</li> <li>ensure wheelchair components such as footrests and armrests and bed components are maintained.</li> <li>modify the design of wheelchair components such as armrests and footrests to reduce forces during installation or removal</li> </ul>	✓		med	med	med
		148.Provide appropriate equipment		✓	high	high	high
		<ul style="list-style-type: none"> <li>provide electric beds where feasible</li> </ul>			high	high	high

### Hands/Wrists/Arms (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
10. Exposure to hard edges	<ul style="list-style-type: none"> <li>Exposed edges on lifting equipment</li> </ul>	9. Eliminate exposure to hard edges <ul style="list-style-type: none"> <li>cover or wrap hard edges</li> </ul>	✓		low	low	low
		148. Provide appropriate equipment <ul style="list-style-type: none"> <li>provide equipment without exposed hard edges</li> </ul>		✓	med to high	low	low
11. Hands and fingers exposed to cold temperatures	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

## Back/Torso

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
12. Repeated forward or sideways bending movements	• Patient is too low	123. Raise the person					
		• raise the bed or stretcher to just below elbow height when repositioning or transferring the patient	✓		low	low	low
	• Patient is too far away	• raise the head of the bed to elevate the patient into an upright position	✓		low	low	low
		38. Move closer to the work location					
		• move the patient closer to the edge of the bed	✓		low	low	low
	• Bed-Stretcher transfer: draw sheet not wide enough	132. Remove obstructions	✓		low	low	low
		149. Provide appropriate tools					
		• provide a draw sheet wide enough to overlap stretcher and eliminate the need to reach and bend	✓		low	med	med
	• Manual transfer of patient	61. Provide a mechanical lift device		✓	med to high	med	med
		13. Encourage ergonomic work techniques					
		• provide training on ergonomics principles and lifting techniques	✓		low	low	low
		• encourage person to use leg muscles to lift	✓		low	low	low
		42. Obtain patient's assistance	✓		low	med	med


### Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
13. Twisting of the lower back	<ul style="list-style-type: none"> <li>Access to the patient (who needs to be handled) is restricted</li> <li>Person tends to twist with the back instead of using the legs and feet to pivot</li> </ul>	82. Provide adequate work space <ul style="list-style-type: none"> <li>remove furniture and equipment that may restrict access to the patient</li> </ul>	✓		low	low	low
		61. Provide a mechanical lift device <ul style="list-style-type: none"> <li>provide mechanical assistance for handling the patient</li> <li>use lift devices which transport patients in an upright posture</li> </ul>		✓	high	med	med
				✓	high	high	med
		13. Encourage ergonomic work techniques <ul style="list-style-type: none"> <li>provide training on ergonomics principles and lifting techniques</li> <li>encourage person to use legs to pivot when handling a load</li> </ul>	✓		low	low	low
			✓		low	low	low
14. High speed, sudden movements or Lifting awkward, uneven, shifting or bulky items.	<ul style="list-style-type: none"> <li>Bed-Stretcher transfer: draw sheet not wide enough</li> <li>Manual transfer of patient between bed-wheel chair or wheel chair-toilet</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>provide a draw sheet wide enough to overlap stretcher and eliminate the need to reach and bend</li> </ul>	✓		low	med	med
		61. Provide a mechanical lift device		✓	med to high	med	med
		142. Use two or more persons to perform the transfer	✓		low	low	low
		42. Obtain patient's assistance	✓		low	low	med

### Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Item is stuck in location</li> <li>Item is difficult to install or remove</li> </ul>	128.Reduce force required to install or remove component	✓		low	med	med
		<ul style="list-style-type: none"> <li>use lubricant to maintain cranks on beds</li> </ul>					
		35. Maintain tracks, rollers, and movement mechanisms.					
		<ul style="list-style-type: none"> <li>ensure wheelchair components such as footrests and armrests, and bed components are maintained</li> </ul>		✓			
		<ul style="list-style-type: none"> <li>modify design of wheelchair components such as armrests and footrests to reduce forces during installation or removal</li> </ul>		✓	high	med	med
		148.Provide appropriate equipment					
		<ul style="list-style-type: none"> <li>provide electric beds where feasible</li> </ul>		✓			
	<ul style="list-style-type: none"> <li>Person tends to lift with a jerky motion instead of a smooth motion</li> <li>Person loses control of the patient</li> </ul>	13. Encourage ergonomic work techniques	✓		low	low	low
		<ul style="list-style-type: none"> <li>encourage person to use smooth fluid motions when transferring patient</li> </ul>					
		<ul style="list-style-type: none"> <li>encourage person to slowly lower the individual to the floor surface rather than trying to regain control if the patient falls</li> </ul>	✓		low	low	low
		42. Obtain patient's assistance	✓				

## Back/Torso (cont'd)


Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
15. Static, awkward back postures	<ul style="list-style-type: none"> <li>Patient positioned too low</li> </ul>	123.Raise the person	✓		low	low	low
		<ul style="list-style-type: none"> <li>raise the bed or stretcher to just below elbow height when repositioning or transferring the patient</li> <li>raise the head of the bed to elevate the patient into an upright position</li> </ul>	✓		low	low	low
16. Lifting forces	<ul style="list-style-type: none"> <li>Patient too heavy</li> </ul>	61. Provide a mechanical lift device		✓	high	med	med
		142.Use two or more persons to perform the transfer	✓		low	med	med
		11. Eliminate unnecessary tasks	✓		low	low	low
	 <ul style="list-style-type: none"> <li>Bed-Stretcher transfer: high friction surface</li> </ul>	4. Change lifting/carrying task into a rolling or sliding task		✓	low to med	med	med
		<ul style="list-style-type: none"> <li>provide a sliding board</li> </ul>					



### Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Patient is difficult to grasp due to               <ul style="list-style-type: none"> <li>- patient pain</li> <li>- medical condition</li> </ul> </li> </ul>	94. Provide appropriate handles <ul style="list-style-type: none"> <li>provide a transfer belt and position belt around the patient when repositioning patient in chair, transferring or walking with patient. Handles should be rounded and 1-1½" (2.5-3.8cm) in diameter</li> </ul>	✓		low	low	low
		<ul style="list-style-type: none"> <li>use draw sheet to reposition the patient while in bed or on the stretcher. Roll up edge of draw sheet to form handle</li> </ul>	✓		low	low	low
		13. Encourage ergonomic work techniques <ul style="list-style-type: none"> <li>ensure patient is dry prior to moving or transferring the patient               <ul style="list-style-type: none"> <li>- dry patient in bath or commode chair</li> </ul> </li> </ul>	✓		low	low	low
		61. Provide a mechanical lift device <ul style="list-style-type: none"> <li>use a mechanical lifting aid to remove patient from bath</li> </ul>		✓	high	med	med

## Back/Torso (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>High forces are required to lift or lower the patient</li> </ul>	35. Maintain tracks, rollers, and movement mechanisms	✓		low	low	low
		<ul style="list-style-type: none"> <li>ensure wheelchair components such as footrests and armrests, and bed components are maintained</li> </ul>					
		148. Provide appropriate equipment	✓	✓	high	med	med
		<ul style="list-style-type: none"> <li>provide electric beds where feasible</li> <li>modify the design of wheelchair components such as armrests, and footrests to reduce forces during installation or removal</li> </ul>		✓	high	med	med
		42. Obtain patient's assistance	✓		low	low	low
		61. Provide a mechanical lift device		✓	high	med	med

## **Back/Torso (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
17. Pushing or pulling	<ul style="list-style-type: none"> <li>Bed-Stretcher transfer: high friction surface</li> <li>Rolling/sliding resistance of cart or piece of equipment causes high forces</li> <li>Floor/surface condition causes high forces during a rolling or sliding task</li> </ul>	4. Change lifting/carrying task into a rolling or sliding task <ul style="list-style-type: none"> <li>provide a sliding board</li> </ul>		✓	low to med	med	med
		19. Improve wheel condition <ul style="list-style-type: none"> <li>repair wheels on chairs, stretchers, etc.</li> </ul>	✓		low	low	low
		119. Provide wheels <ul style="list-style-type: none"> <li>provide wheels with appropriate bearings and tread composition</li> </ul>	✓		med	med	med
		17. Improve floor condition <ul style="list-style-type: none"> <li>improve housekeeping</li> <li>repair cracks or gaps in floor</li> <li>provide ramps to compensate for minor differences in floor height</li> </ul>	✓ ✓	✓	low high low	med med med	med med med
18. Whole body vibration	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

## Legs/Feet

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
19. Fixed position, standing	<ul style="list-style-type: none"> <li>Standing for long periods</li> </ul>	20. Incorporate rest pauses	✓		low	low	low
		25. Increase task variety <ul style="list-style-type: none"> <li>alternate work tasks to avoid handling patients for extended periods of time</li> </ul>	✓		low	low	low
20.Exposure to hard edges on legs, knees, and feet <u>or</u> Standing on hard surfaces	<ul style="list-style-type: none"> <li>Standing on a hard surface</li> </ul>	96. Provide appropriate shoe inserts	✓		low	low	low
21. Awkward leg postures	<ul style="list-style-type: none"> <li>Patient is too low</li> </ul>	124.Raise the work piece /work surface <ul style="list-style-type: none"> <li>raise the bed or stretcher so that the patient is at or just below elbow height</li> </ul>	✓		low	med	med
22. Awkward foot postures	<ul style="list-style-type: none"> <li>Repeated crouching</li> <li>Work too low</li> <li>Manual bed adjustment (crank)</li> </ul>	148. Provide appropriate equipment <ul style="list-style-type: none"> <li>provide electric beds where feasible</li> </ul>		✓	high	high	high

## Head/Eyes

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
23. Difficult to see/light levels too low/too high	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	18. Improve visual access to work <ul style="list-style-type: none"> <li>Light levels should be 100fc to 150fc for work</li> </ul>		✓	low to high	med	med
24. Intensive visual tasks, staring at work objects for long periods	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

This page intentionally left blank